

FIG. 1

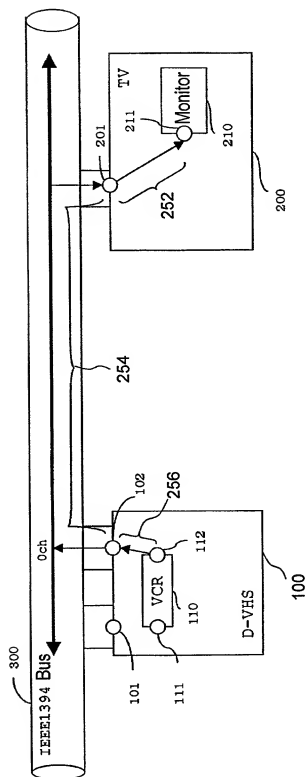


FIG. 2

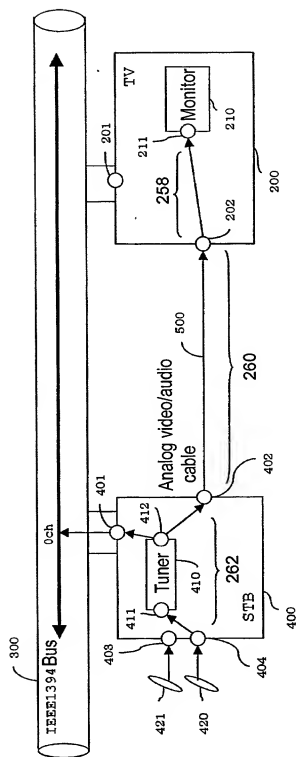


FIG. 3(a)

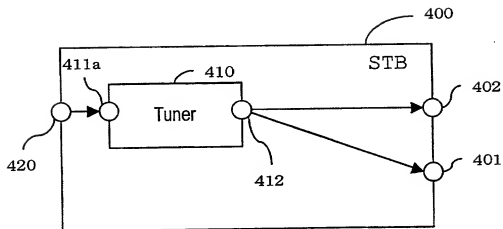


FIG. 3(b)

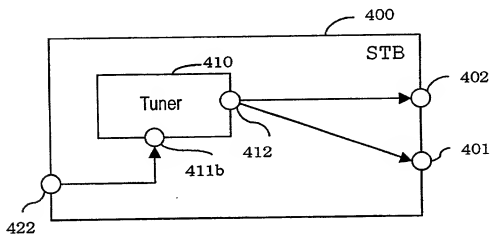


FIG. 4

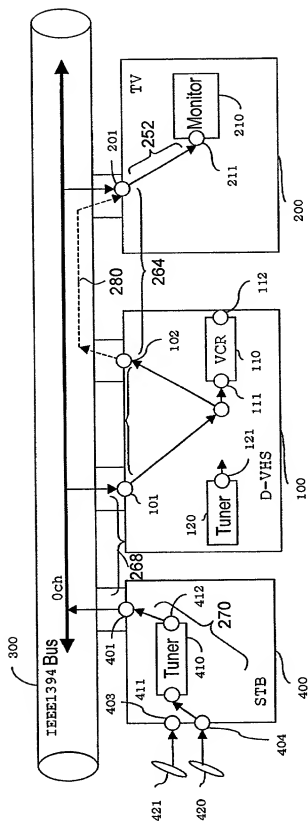


FIG. 5

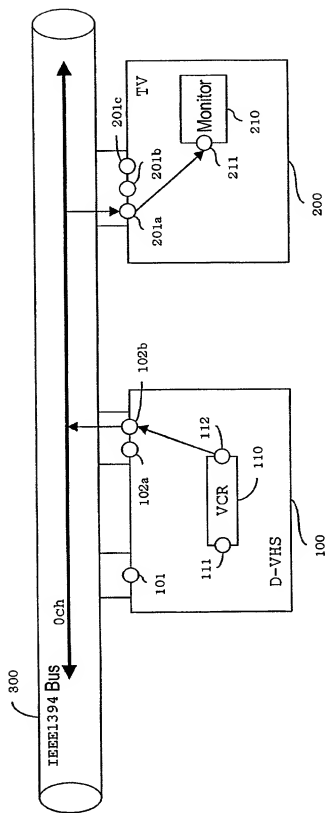


FIG. 6

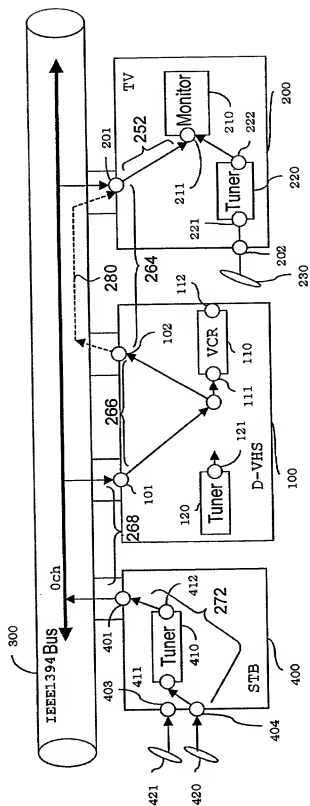


FIG. 7(a)

	msb									lsb
opcode	INTERNAL SIGNAL SOURCE(26 <sub>16</sub> )									
operand[0]	plug									
operand[1]	signal_source_number									
operand[2]	FF <sub>16</sub>									
operand[3]	FF <sub>16</sub>									
operand[4]	FF <sub>16</sub>									
operand[5]	FF <sub>16</sub>									
operand[6]	FF <sub>16</sub>									
operand[7]	FF <sub>16</sub>									
operand[8]	FF <sub>16</sub>									

FIG. 7(b)

value	plug
0-1E <sub>16</sub>	Serial Bus OPCR[0]-OPCR[30]
1F <sub>16</sub> -7E <sub>16</sub>	Reserved
7F <sub>16</sub>	Reserved
80 <sub>16</sub> -9E <sub>16</sub>	External output plug 0-30
9F <sub>16</sub> -99 <sub>16</sub>	Reserved
A0 <sub>16</sub> -BE <sub>16</sub>	Serial Bus Asynchronous output plug[0]-[30]
BF <sub>16</sub>	Reserved
C0 <sub>16</sub> -FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Reserved

FIG. 7C

value	plug
0-1E <sub>16</sub>	Destination plug 0-30
1F <sub>16</sub> -FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Reserved

FIG. 8(a)

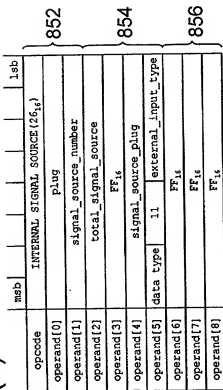


FIG. 8(b)

	data type
00	No information
01	Video
10	Audio
11	Audio/Video

FIG. 8(c)

	plug type
0-1E <sub>16</sub>	Serial Bus IFCR[0]-ICR[30]
1F <sub>16</sub> -7E <sub>16</sub>	Reserved
7F <sub>16</sub>	Reserved
80 <sub>16</sub> -9E <sub>16</sub>	External input plug 0-30
9F <sub>16</sub> -99 <sub>16</sub>	Reserved
A0 <sub>16</sub> -BE <sub>16</sub>	Serial Bus Asynchronous input plug[0]-[30]
BF <sub>16</sub>	Reserved
C0 <sub>16</sub> -FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Reserved

FIG. 8(d)

	external plug type
0000	analogue
0001	SCART
0010-0110	reserved
0111	antenna
1000	IEC958(I/coaxial)
1001	IEC958(optical)
1010-1110	reserved
1111	(Serial Bus or Async)



FIG. 9(a)

msb								lsb				
opcode		INTERNAL_SIGNAL_SOURCE(26 <sub>16</sub> )										952
operand[0]		plug										
operand[1]		signal_source_number										
operand[2]		total_signal_source										954
operand[3]		subunit type				subunit ID						
operand[4]		signal source plug(0-1E <sub>16</sub> )										
operand[5]		data type				3F <sub>16</sub>						956
operand[6]		FF <sub>16</sub>										
operand[7]		FF <sub>16</sub>										
operand[8]		FF <sub>16</sub>										

FIG. 9(b)

value	plug
0-1E <sub>16</sub>	Source plug 0-30

FIG. 10(a)

opcode	INTERNAL_SIGNAL_SOURCE (26 <sub>16</sub> )	msb	lsb
operand(0)	plug (0-1E <sub>16</sub> )		
operand(1)	signal_source_number		
operand(2)	total_signal_source		
operand(3)	FF <sub>16</sub>		
operand(4)	signal_source_plug		
operand(5)	data type 11 external plug type		
operand(6)	00 IEEE1394 isochronous channel		
operand(7)	output status FF <sub>16</sub>		
operand(8)	FF <sub>16</sub>		

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FIG. 10(b)

opcode	INTERNAL_SIGNAL_SOURCE (26 <sub>16</sub> )	msb	lsb
operand(0)	plug (0-1E <sub>16</sub> )		
operand(1)	signal_source_number		
operand(2)	total_signal_source		
operand(3)	subunit type		
operand(4)	subunit ID		
operand(5)	data type 3F <sub>16</sub>		
operand(6)	00 IEEE1394 isochronous channel		
operand(7)	output status FF <sub>16</sub>		
operand(8)	FF <sub>16</sub>		

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FIG. 10(c)

Value	output_status	IEEE1394 isochronous channel
0000	Outputting	Channel No. output by device itself
0001	Virtual outputting	Channel No. output by other devices
0010	Not outputting	FF <sub>16</sub>
0011-1111	reserved	reserved

FIG. 11(a)

msb									lsb						
INTERNAL_SIGNAL_SOURCE (26 <sub>15</sub> )															
opcode															
operand[0]															
plug(80 <sub>14</sub> -9F <sub>14</sub> )															
operand[1]															
signal_source_number															
operand[2]															
total_signal_source															
operand[3]															
FF <sub>15</sub>															
operand[4]															
signal_source_plug															
operand[5]															
data_type				11											
external_input_type				F <sub>15</sub>											
operand[6]															
01				11											
external_output_type				FF <sub>15</sub>											
operand[7]															
external_output_status				FF <sub>15</sub>											
operand[8]															
FF <sub>15</sub>															

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FIG. 11(b)

msb												lsb			
		INTERNAL_SIGNAL_SOURCE (26 <sub>14</sub> )													
		opcode													
		operand[0]													
		plug(80 <sub>14</sub> -9F <sub>14</sub> )													
		operand[1]													
		signal_source_number													
		operand[2]													
		total_signal_source													
		operand[3]													
		FF <sub>15</sub>													
		operand[4]													
		signal_source_plug													
		operand[5]													
		data type				3F <sub>15</sub>									
		01				11				external_output_type					
		external_output_status				F <sub>15</sub>									
		operand[7]													
		external_output_status				FF <sub>15</sub>									
		operand[8]													

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FIG. 11(c)

	external output status
0000	active
0001	reserved
0010	inactive
0011-1111	reserved

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FIG. 12(a)

	msb							lsb
	INTERNAL SIGNAL_SOURCE (2F <sub>16</sub> )							
1252	opcode							
	operand[0]	plug(A0 <sub>16</sub> -BE <sub>16</sub> )						
	operand[1]	signal_source_number						
	operand[2]	FF <sub>16</sub>						
	operand[3]	FF <sub>16</sub>						
1254	operand[4]	signal_source_plug						
	operand[5]	data_type	11	external_input_type				
	operand[6]	FF <sub>16</sub>						
1256	operand[7]	async_output_status						
	operand[8]	FF <sub>16</sub>						

FIG. 12(b)

msb												lsb	
		INTERNAL_SIGNAL_SOURCE (26 <sub>16</sub> )											1258
		plug(A0 <sub>16</sub> -B8 <sub>16</sub> )											
		signal_source_number											1260
		FF <sub>16</sub>											
				subunit_type		subunit ID							1262
						signal_source_plug							
		data_type		3F <sub>16</sub>									
				FF <sub>16</sub>									
		async_output_status											E <sub>16</sub>
		FF <sub>16</sub>											
		operand[8]											

FIG. 12(c)

	async output status
0000	connected
0001	reserved
0010	not connected
0011-1111	reserved

FIG. 13(a)

opcode	INTERNAL_SIGNAL_SOURCE (26 <sub>16</sub> )	meb	lab
operand[0]	plug		
operand[1]	signal_source_number		
operand[2]	FF <sub>16</sub>		
operand[3]	FF <sub>16</sub>		
operand[4]	signal_source_plug		
operand[5]	data type		3F <sub>16</sub>
operand[6]	FF <sub>16</sub>		
operand[7]	FF <sub>16</sub>		
operand[8]	FF <sub>16</sub>		

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FIG. 13(b)

opcode	INTERNAL_SIGNAL_SOURCE (26 <sub>16</sub> )	meb	lab
operand[0]	plug		
operand[1]	signal_source_number		
operand[2]	FF <sub>16</sub>		
operand[3]	subunit_type		subunit ID
operand[4]	signal_source_plug		
operand[5]	data type		3F <sub>16</sub>
operand[6]	FF <sub>16</sub>		
operand[7]	FF <sub>16</sub>		
operand[8]	FF <sub>16</sub>		

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FIG. 13(c)

value	plug type
0-1E <sub>16</sub>	Serial Bus IPCR[0]-IPCR[30]
1F <sub>16</sub> -7E <sub>16</sub>	Reserved
7F <sub>16</sub>	Any available Serial Bus plug IPCR[x]
80 <sub>16</sub> -9E <sub>16</sub>	External input plug 0-30
9F <sub>16</sub> -99 <sub>16</sub>	Reserved
A0 <sub>16</sub> -BE <sub>16</sub>	Serial Bus Asynchronous input plug[0]-[30]
BF <sub>16</sub>	Any available Serial Bus Asynchronous input plug
C0 <sub>16</sub> -FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Any available External input plug

FIG. 13(d)

value	plug
0-1E <sub>16</sub>	Source plug 0-30
1F <sub>16</sub> -FC <sub>16</sub>	Reserved
FF <sub>16</sub>	Any available source plug

FIG. 14(a)

msb												lsb
opcode		INTERNAL_SIGNAL_SOURCE(25 <sub>16</sub> )										
operand[0]		plug										
operand[1]		signal_source_number										
operand[2]		FF <sub>16</sub>										
operand[3]		FF <sub>16</sub>										
operand[4]		signal_source_plug										
operand[5]		data type	3F <sub>16</sub>									
operand[6]		FF <sub>16</sub>										
operand[7]		FF <sub>16</sub>										
operand[8]		FF <sub>16</sub>										

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FIG. 14(b)

msb									lsb
INTERNAL_SIGNAL_SOURCE(26 <sub>16</sub> )									
opcode									
operand[0]	plug								
operand[1]	signal_source_number								
operand[2]	FF <sub>16</sub>								
operand[3]	subunit_type		subunit_ID						
operand[4]	signal_source_plug								
operand[5]	data_type		3F <sub>16</sub>						
operand[6]	FF <sub>16</sub>								
operand[7]	FF <sub>16</sub>								
operand[8]	FF <sub>16</sub>								

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FIG. 14(c)

	plug type
0-1E <sub>16</sub>	Serial Bus oPCR[0]-oPCR[30]
1F <sub>16</sub> -7E <sub>16</sub>	Reserved
7F <sub>16</sub>	Any available Serial Bus plug oPCR[x]
80 <sub>16</sub> -9E <sub>16</sub>	External output plug 0-30
9F <sub>16</sub> -99 <sub>16</sub>	Reserved
A0 <sub>16</sub> -BE <sub>16</sub>	Serial Bus Asynchronous output plug[0]-[30]
BF <sub>16</sub>	Any available serial Bus asynchronous output plug[x]
C0 <sub>16</sub> -FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Any available external output plug

FIG. 15(a)

	msb							lsb
opcode	EXTERNAL SIGNAL SOURCE (27 <sub>16</sub> )							
operand[0]	plug							
operand[1]	FF <sub>16</sub>							
operand[2]	FF <sub>16</sub>							
operand[3]	FF <sub>16</sub>							
operand[4]	FF <sub>16</sub>							
operand[5]	FF <sub>16</sub>							
operand[6]	FF <sub>16</sub>							
operand[7]	FF <sub>16</sub>							
operand[8]	FF <sub>16</sub>							

FIG. 15(b)

value	plug
0-1E <sub>16</sub>	Serial Bus iPCR[0]-iPCR[30]
1F <sub>16</sub> -7E <sub>16</sub>	Reserved
7F <sub>16</sub>	Reserved
80 <sub>16</sub> -9E <sub>16</sub>	External input plug 0-30
9F <sub>16</sub> -99 <sub>16</sub>	Reserved
A0 <sub>16</sub> -BE <sub>16</sub>	Serial Bus Asynchronous input plug[0]-[30]
BF <sub>16</sub>	Reserved
C0-FD <sub>16</sub>	Reserved
FE <sub>16</sub>	Reserved
FF <sub>16</sub>	Reserved

FIG. 16(a)

	msb							lsb	
opcode	EXTERNAL_SIGNAL_SOURCE(27 <sub>16</sub> )								1652
operand[0]	plug(0-1E <sub>16</sub> )								
operand[1]	output_state				F <sub>16</sub>				1654
operand[2]	00		IEEE1394 isochronous channel						
operand[3]	Node ID of signal source (when unknow,FF <sub>16</sub> )								1654
operand[4]	OPCR of signal source (when unknow,FE <sub>16</sub> )								
operand[5]	EUI-64 of signal source (when unknow,all <sub>1</sub> )								
operand[6]									
operand[7]									
operand[8]									

FIG. 16(b)

Value	output_status	IEEE1394 isochorounous channel
0000	Outputting	Channel No. output by device itself
0001	Virtual outputting	Channel No. output by other devices
0010	Not outputting	FF <sub>16</sub>
0011-1111	reserved	reserved



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FIG. 18

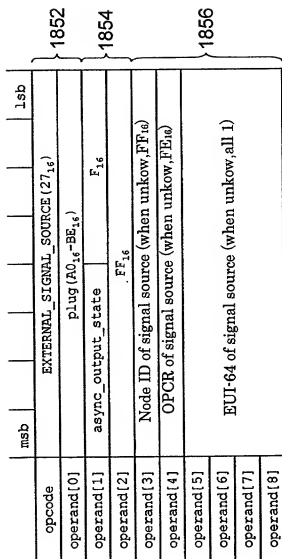


FIG. 19

msb												lsb	
opcode		EXTERNAL_SIGNAL_SOURCE (27 <sub>16</sub> )											
operand[0]		plug (0-1E <sub>16</sub> )											
operand[1]		output_state				F <sub>16</sub>							
operand[2]		00				IEEE1394 isochronous channel							
operand[3]		Node_ID of signal source (when no condition, FF <sub>16</sub> )											
operand[4]		OPCR of signal source (when no condition, FE <sub>16</sub> )											
operand[5]		EUI-64 of signal source (when no condition, all 1)											
operand[6]													
operand[7]													
operand[8]													

1952

1954

FIG. 20

opcode	msb								lsb
operand[0]	EXTERNAL_SIGNAL_SOURCE (27 <sub>16</sub> )								
operand[1]	plug (80 <sub>16</sub> -9E <sub>16</sub> )								
operand[2]	external_output_state								F <sub>16</sub>
operand[3]	01	11							external_output_type
operand[4]	Node_ID of signal source (when no condition, FF <sub>16</sub> )								
operand[5]	OPCR of signal source (when no condition, FE <sub>16</sub> )								
operand[6]	EUI-64 of signal source (when no condition, all 1)								
operand[7]									
operand[8]									

2052

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FIG. 21

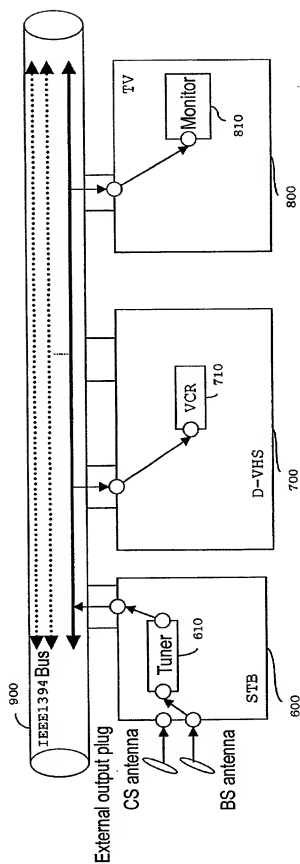


FIG. 22(a)

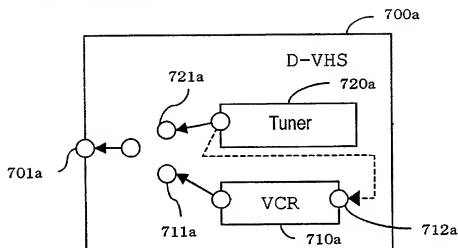
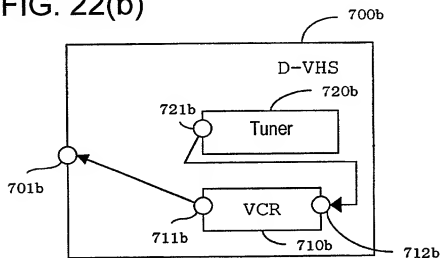


FIG. 22(b)



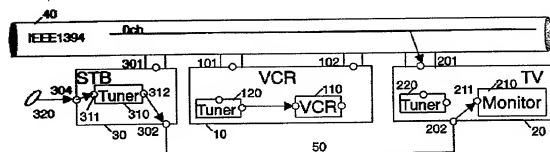
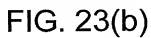


FIG. 24

	msb						lsb
opcode	SIGNAL_SOURCE (28 <sub>h</sub> )						
operand[0]	FF <sub>16</sub>						
operand[1]	FF <sub>16</sub>						
operand[2]	FF <sub>16</sub>						
operand[3]	signal_destination_subunit_type			signal_destination_subunit_ID			
operand[4]	signal_destination_plug						

SIGNAL.SOURCE status command format

FIG. 25

	msb						lsb
opcode	SIGNAL SOURCE (28 <sub>h</sub> )						
operand[0]	output status			conv	connect status		
operand[1]	signal_source						
operand[2]							
operand[3]	signal destination subunit type			signal destination subunit ID			
operand[4]	signal destination plug						

SIGNAL.SOURCE status response format



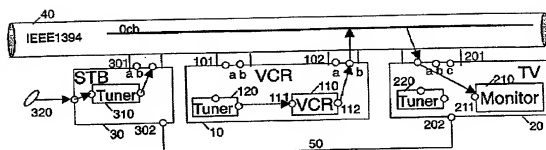
FIG. 26(a)

value	output_status
0000	effective packet output
0001	not effective
0010	insufficient resource
0011	ready
0100	virtual output
0101-1111	reserved

FIG. 26(b)

value	connect_status
000	normal
001	through
010	modified
011	OSD
100	converted
101-110	reserved
111	(not used)

FIG. 27



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FIG. 28

	msb						lsb
opcode	SIGNAL_SOURCE (28 <sub>16</sub> )						
operand[0]	FF <sub>16</sub>						
operand[1]	signal_source						
operand[2]							
operand[3]	signal_destination_subunit_type			signal_destination_subunit_ID			
operand[4]	signal_destination_plug						

SIGNAL SOURCE control command format

FIG. 29

	msb						lsb
opcode	SIGNAL_SOURCE (28 <sub>16</sub> )						
operand[0]	reserved			connect status			
operand[1]	signal_source						
operand[2]							
operand[3]	signal destination subunit type			signal destination subunit ID			
operand[4]	signal destination plug						

SIGNAL SOURCE control response format

FIG. 30(a)

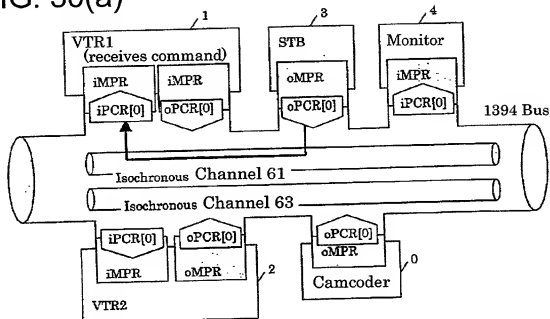
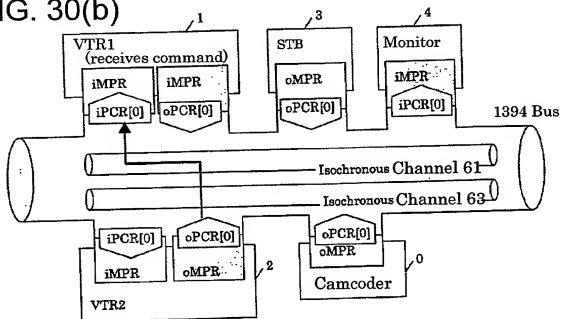


FIG. 30(b)



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FIG. 31

	msb						lsb
opcode	INPUT SELECT (27 <sub>16</sub> )						
operand[0]	plug						
operand[1]	0000			level			
operand[2]	status						
operand[3]	input_type						
operand[4]	reserved (all 0)						
operand[5]	connected node_ID						
operand[6]							
operand[7]	connected plug_ID						
operand[8]	reserved (all 0)						

10019927.050102

FIG. 32

value	level	meaning
0000	Level0	If ready, establish connection
0001	Level1	If broad cast input only, establish connection, even if stopping it
0010	Level2	Establish connection, even if stopping p-to-p (Target established)
0011-1111	reserved	

FIG. 33

value	input_type
00 - 3F <sub>16</sub>	isochronous channel to input
40 <sub>16</sub>	any available isochronous channel
41 - FF <sub>16</sub>	reserved

FIG. 34

value	meaning	return	iPCR
0000	Ready	ACCEPTED	active
0001	Receiving another broadcast input	REJECTED	active
0010	Inputting another p-to-p Input (owner)	REJECTED	active
0100	Inputting another p-to-p Input (not owner)	REJECTED*	active
0101	Band width, ch are not taken	REJECTED*	idle, ready, suspended
0110	No node, plug of partner	REJECTED*	-
0111	No internal connection in iPCR	REJECTED*	idle, ready, suspended
1000-1100	reserved	-	
1110	Any other reason	REJECTED	-
1111-	reserved	-	-

FIG. 35

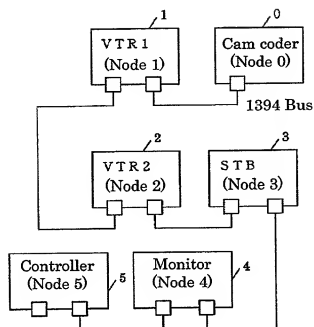


FIG. 36

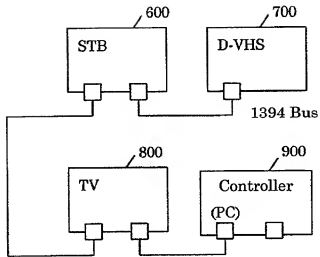




FIG. 37(a)

	msb							lsb
opcode	CONNECT (24 <sub>h</sub> )							
operand[0]	3F <sub>s</sub>						lock	perm
operand[1]	source_subunit_type				source_subunit_ID			
operand[2]	source_plug							
operand[3]	destination_subunit_type				destination_subunit_ID			
operand[4]	destination_plug							

FIG. 37(b)

	msb								lsb
opcode	CONNECT (24 <sub>h</sub> )								
operand[0]	FF <sub>16</sub>								
operand[1]	FF <sub>16</sub>								
operand[2]	FE <sub>16</sub>								
operand[3]	destination_subunit_type				destination_subunit_ID				
operand[4]	destination_plug								

## Reference numerals in the drawings

100	D-VHS
700	D-VHS
700a	D-VHS
700b	D-VHS
750	D-VHS
101	Digital input plug
201	Digital input plug
201a	Digital input plug
201b	Digital input plug
201c	Digital input plug
422	Digital input plug
102	Digital output plug
102a	Digital output plug
102b	Digital output plug
401	Digital output plug
701a	Digital output plug
701b	Digital output plug
110	VCR
710	VCR
710a	VCR
710b	VCR
111	Destination plug
211	Destination plug
221	Destination plug
411	Destination plug
411a	Destination plug
411b	Destination plug
710a	Destination plug
710b	Destination plug
711	Destination plug
112	Source plug
121	Source plug
232	Source plug

412 Source plug  
712 Source plug  
721a Source plug  
721b Source plug  
120 Tuner  
220 Tuner  
410 Tuner  
610 Tuner  
720 Tuner  
720a Tuner  
720b Tuner  
200 TV  
800 TV  
202 External input plug  
403 External input plug  
404 External input plug  
420 External input plug  
210 Monitor  
810 Monitor  
230 Satellite broadcast reception antenna  
420 Satellite broadcast reception antenna  
300 IEEE1394 bus  
900 IEEE1394 bus  
400 STB  
600 STB  
402 External output plug  
421 Satellite communication antenna  
500 Analog video/audio signal cable  
10 D-VHS  
20 TV  
30 STB  
40 IEEE139bus  
50 Analog video/audio signal cable  
210 Monitor

211	Destination plug
301	Digital output plug
302	Destination plug
310	Tuner
6	Camcorder
1	VTR1
2	VTR2
3	STB
4	Monitor
5	Controller
252	Path
254	Path
256	Path
258	Path
260	Path
262	Path
264	Path
266	Path
268	Path
270	Path
272	Path
280	Virtual output path
852	The same contents as command
854	Response to signal source
856	Response to output
952	The same contents as command
954	Response to signal source
956	Response to output
1052	The same contents as command
1054	Response to signal source
1056	Response to output
1058	The same contents as command
1060	Response to signal source
1062	Response to output

1152 The same contents as command  
1154 Response to signal source  
1156 Response to output  
1158 The same contents as command  
1160 Response to signal source  
1162 Response to output  
1252 The same contents as command  
1254 Response to signal source  
1256 Response to output  
1258 The same contents as command  
1260 Response to signal source  
1262 Response to output  
1352 Response to signal source  
1354 Inquiry to output  
1356 Response to signal source  
1358 Response to output  
1452 Inquiry to signal source  
1454 Inquiry to output  
1456 Response to signal source  
1458 Response to output  
1652 The same contents as command  
1654 Response to output  
1656 Response to signal source  
1752 The same contents as command  
1754 Response to output  
1756 Response to signal source  
1852 The same contents as command  
1854 Response to output  
1856 Response to signal source  
1952 Response to output  
1954 Response to signal source  
2052 Response to output  
2054 Response to signal source